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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,048	09/22/2003	Shih Huei Liang	LEEL121740	7271
26389	7590	05/10/2005	EXAMINER	
CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC 1420 FIFTH AVENUE SUITE 2800 SEATTLE, WA 98101-2347			STAICOVICI, STEFAN	
			ART UNIT	PAPER NUMBER
			1732	

DATE MAILED: 05/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/668,048

Applicant(s)

LIANG, SHIH HUEI

Examiner

Stefan Staicovici

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/073,286.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/1/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Specification

1. The Abstract of the disclosure is objected to because phrases that can be implied such as “disclosed” (page 23, lines 7 and 10) should not be used. Correction is required. See MPEP § 608.01(b).

Claim Objections

2. Claims 10-11 are objected to because of the following informalities: in claims 10 and 11, the units “mm” should be changed to -- μm -- in order to provide clear and supported claim language. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is unclear what the Applicant is referring to by “an O-shaped gate”. The claim is unclear as to what defines a gate as an “an O-shaped gate” and hence, creates difficulty for one of ordinary skill in the art at the time of the invention to understand the claimed process.

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It should be noted that for purposes of examination it will be assumed that the Applicant is referring to a circular-shaped gate. Appropriate correction is required.

In claim 1, the step of forming granulates includes a step of "polymerizing." It is unclear to one of ordinary skill in the art to understand how a polymerizing reaction is generated in the process of forming granulates having the claimed composition of polyethylene, inorganic minerals and additives because it is unclear whether polymerization occurs before or after the pellets are formed. It should be noted that for purposes of examination it will be assumed that the polymerization reaction is caused by cross-linking agents.

Claims 2-15 are rejected as dependent claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-7 and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue *et al.* (US Patent No. 5,254,617) in view of Sakurai *et al.* (US Patent No. 4,219,453).

Inoue *et al.* ('617) teach the basic claimed process of forming an inorganically filled polymer "paper-like" film (col. 1, lines 40-45) by feeding a resin composition, containing high density polyethylene, inorganic minerals and additives, to a blow-film extrusion assembly including continuously feeding the above mentioned resin composition to an extruder (3) for

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melting and homogenizing the resin composition, shaping a tubular (hollow) extrudate using a cylindrical (circular or O-shaped) die (mold) (4), inflating (expanding) the tubular extrudate into a bubble (8), cooling the formed bubble by using air ring (5), collapsing the bubble into a film by plates (12) and pulling (stretching) the resulting film using puller (6) onto winder (7). Since the process occurs continuously it is submitted that inflation (expansion) and stretching of the film occurs simultaneously.

Regarding claim 1, Inoue *et al.*('617) does not teach forming granulates from a combination of inorganic mineral powders, high density polyethylene and additives. Sakurai *et al.*('453) teach the process of forming pellets from a combination of 35% to 90% by weight ethylene polymer (polyethylene), 10% to 65% by weight inorganic minerals and additives (i.e., anti-static, lubricants, pigments, cross-linking) by mixing and kneading (extruding) the respective ingredients at elevated temperatures and pelletizing (which includes milling) the resulting homogenized mixture. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the composition of Sakurai *et al.*('453) in the polymer paper film process of Inoue *et al.*('617) because, Sakurai *et al.*('453) teach that such a composition provides for improved tear strength, hence providing for an improved paper-like product obtained by the process of Inoue *et al.*('617). Although the claimed proportion of each component of the mixture is not completely included by the taught proportion ranges of Sakurai *et al.*('453), but only part of the claimed range, it is noted that the amount used is influenced by the size of the particles, the type and grade of olefin resin selected, the molding conditions, the desired film thickness and therefore, it would have been obvious to one of ordinary skill in the

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art at the time of the invention to use routine experimentation to determine an optimum resin composition that assures a "paper-like" film having high mechanical strength, formability and water resistance.

Regarding claim 2, Inoue *et al.*('617) teaches a winder (7), that in effect is folding the resulting film.

In regard to claim 3, although the cited references do not teach cutting of the formed film, judicial notice is taken that slitting a molded film into sheets is well known in the art. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to cut the film obtained by the process of Inoue *et al.*('617) as modified by Sakurai *et al.*('453) in order to promote ease of handling and storage.

Specifically regarding claim 4, Sakurai *et al.*('453) teach an extrusion temperature in the range of 150° - 250° C (col. 5, line 20). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the composition of Sakurai *et al.*('453) at an extrusion temperature in the range of 150° - 250° C in the polymer paper film process of Inoue *et al.*('617) because, Sakurai *et al.*('453) teach that such a composition and process parameters provides for improved tear strength, hence providing for an improved paper-like product obtained by the process of Inoue *et al.*('617).

In regard to claim 5, Inoue *et al.*('617) teaches upward molding of a paper polymer film as shown in Figure 1.

Regarding claim 6, although the cited references do not specifically teach a cooling gradient of the film defined by a temperature of about 80° - 120° C at a distance of about 30-700

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mm, cooling is taught by Inoue *et al.*('617) (col. 5, lines 33-35). Since parameters such as composition, molding conditions, and cooling rate (gradient) are influenced by material properties and desired film thickness, it would have been obvious to one of ordinary skill in the art at the time of the invention to use routine experimentation to determine an optimum cooling rate (gradient) in the process of Inoue *et al.*('617) in view of Sakurai *et al.*('453) in order to assure optimum stress relaxation of the formed film and also because cooling is taught by Inoue *et al.*('617).

Specifically regarding to claim 7, Inoue *et al.*('617) teach an extruder (3) and a die (mold) (4) with a narrow slit (inner passage) (col. 5, lines 48-49) for extruding a tubular film. Although, Inoue *et al.*('617) do not teach an inlet, it is submitted that an inlet be provided to the molding die in order to transfer molten material from the extruder to the molding die.

In regard to claim 10, Sakurai *et al.*('453) teach a resulting film thickness of less than 40 microns (col. 20, lines 23-24).

Regarding claim 11, Sakurai *et al.*('453) teach a resulting film thickness in the range of 40 to 200 microns (col. 20, lines 40-41).

Specifically regarding claim 12, Inoue *et al.*('617) in view of Sakurai *et al.*('453) do not teach coating of the resulting "paper-like" film. However, judicial notice is taken that coating of paper films is well known and it would have been obvious for one of ordinary skill in the art at the time of the invention to further coat the resulting "paper-like" film obtained by the process of Inoue *et al.*('617) in view of Sakurai *et al.*('453) as modified by Sakurai *et al.*('453) in order to improve surface quality and therefore, enhance printability and obtain an improved product.

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In regard to claim 13, Inoue *et al.*('617) teaches the use of talc, while Sakurai *et al.*('453) teach the use of titanium oxide, calcium sulfate, barium sulfate, clay.

Regarding claim 14, both Inoue *et al.*('617) and Sakurai *et al.*('453) teach the use of high density polyethylene.

Specifically regarding claim 15, Sakurai *et al.*('453) teach the use of additives such as anti-static agents and lubricants. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the anti-static agents and lubricants of Sakurai *et al.*('453) in the polymer paper film process of Inoue *et al.*('617) because, Sakurai *et al.*('453) teach that such a composition provides for improved tear strength, hence providing for an improved paper-like product obtained by the process of Inoue *et al.*('617).

7. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue *et al.* (US Patent No. 5,254,617) in view of Sakurai *et al.* (US Patent No. 4,219,453) and in further view of Schirmer (US Patent No. 4,095,012).

Inoue *et al.*('617) in view of Sakurai *et al.*('453) teach the basic claimed process as described above.

Regarding claims 8-9, Inoue *et al.*('617) in view of Sakurai *et al.*('453) do not teach multiple extruders. Schirmer ('012) teaches a laminate film molding process including three extruders (A, B, C) feeding an annular (circular) coextrusion die (1) that forms a tubular laminate (4) which is further cooled by cooling ring (5), collapsed between pinch rollers (6) and wound upon roll (10), followed by biaxial stretching. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to use multiple extruders and a coextrusion

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die as taught by Schirmer ('012) in the process of Inoue *et al.* ('617) in view of Sakurai *et al.* ('453) in order to form a laminate film, due to known advantages that a laminate provides such as improved characteristics and process versatility, hence providing for an improved product. Further, it should be noted that merely claiming multiple extruders (two or three) when the references teach a single extruder provides little patentable distinction to the claimed process upon which patentability must be determined. It would have been obvious for one of ordinary skill in the art at the time of the invention to use two or more extruders depending on the desired number of layers of the final film laminate. Further, it is well known in the art that a coextrusion die has the same number of inlets and inner passageways as the number of extruders that provide molten material. It would have been obvious for one of ordinary skill in the art at the time of the invention to use a coextrusion die having two inlets and two inner passageways when using two extruders, and three inlets and three inner passageways when using three extruders, due to availability and ease of processing.

8. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai *et al.* (US Patent No. 4,219,453).

Sakurai *et al.* ('453) teach the basic composition for forming a "paper-like" film including 35% to 90% by weight ethylene polymer (polyethylene), 10% to 65% by weight inorganic minerals and minor amounts of other additives. Although the claimed proportion of each component of the mixture is not completely included by the taught proportion ranges of Sakurai *et al.* ('453), but only part of the claimed range, it is noted that the amount used is influenced by the size of the particles, the type and grade of olefin resin selected, the molding conditions, the

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desired film thickness and therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use routine experimentation to determine an optimum resin composition that assures a "paper-like" film having high mechanical strength, formability and water resistance. Further, it should be noted that Sakurai *et al.* ('453) teach "minor" amounts of additives, which can be read upon the claimed 1%-2% by weight of the total mixture.

In regard to claim 17, Sakurai *et al.* ('453) teach the use of titanium oxide, zinc oxide, calcium sulfate, barium sulfate, clay (col. 2, lines 61-68).

Regarding claim 18, Sakurai *et al.* ('453) teach the use of high density polyethylene (col. 4, line 55).

Specifically regarding claim 19, Sakurai *et al.* ('453) teach the use of additives such as anti-static agents and lubricants (see col. 4, lines 58-60).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

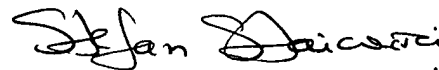
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Staicovici, Ph.D. whose telephone number is (571) 272-1208. The examiner can normally be reached on Monday-Friday 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Colaianni, can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stefan Staicovici, PhD



Primary Examiner

4/29/05

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April 29, 2005